## SEQUENCE LISTING

<110> Ron, David Jousse, Celine

<120> METHODS OF SCREENING TEST COMPOUNDS USING GADD34L, AN eIF2alpha-SPECIFIC PHOSPHATASE SUBUNIT

<130> 5986/1L712-US1

<150> US 60/408,679

<151> 2002-09-06

<160> 10

<170> PatentIn version 3.1

<210> 1

<211> 2942

<212> DNA

<213> Homo sapiens

<400> 1 attttgggct tcgcttccac cgcaccagcc ggcctaccca gtccttccgg tatcgcgttg 60 ctcaggggct tttcaaccct ctgtcagtcg gaaaaccatc gccgaggccg tggggggact 120 cctatccatg gtgttgaagc gtcgagccga ctagggaacc tccttccccg ccaggatgga 180 agtogcatca gtogcogoct attgogoggg otgttettoc otgtgttetg cogcocgetg 240 300 ccgcattcgc tgccctctgt ggcttttctg ctggctcgaa gatcggcctg gagcagcgac 360 gccaccgctg ggcaaggccg agactctgta ggcttcctcc gaatcccgtc gacctccagc cgctgagcgc cgcggcccta cctgagagac tgtcaagaaa aaggagatgg agccggggac 420 aggeggateg eggaaaegge ttggeeeteg ggegggette eggttetgge eaccettttt 480 ccctcggcga tcgcaagcag gctcttctaa gttcccgacg cctcttggcc cggaaaactc 540 cgggaacccc acactgcttt cctctgccca gcccgagact cgggtcagtt actggacgaa 600 actgctctcc cagctccttg cgccgctccc cggattgctt cagaaggtgc taatttggag 660 ccaacttttc ggtggaatgt ttccgaccag atggctagat tttgctggag tctacagcgc 720 cctgagagcc ctgaagggac gggagaaacc agccgcccc acagcgcaga aatctttgag 780 ttcgctgcag ctcgactcct cagacccctc ggtcaccagt ccccttgatt ggctagagga 840 ggggatccac tggcaatact cgcccccaga cctaaaattg gagcttaagg ccaagggaag 900 tgctttggac cctgcagcac aggcttttct cttagagcag cagctgtggg gagtggagct 960 gttgcccagt agccttcaat cccgtctgta ctctaaccgg gaacttggct cttcgccctc 1020

tgggcctcta aacattcaac gcatagacaa tttcagtgtg gtatcctatt tgctgaaccc 1080 ttcctacctg gactgctttc ctaggctaga agtcagctat cagaacagtg atggaaatag 1140 egaggtagte ggettecaga cactaacece agagageage tgeetgagag aggaceattg 1200 tcatccccag ccgctgagtg cagaactcat tccggcctcg tggcagggat gtccacctct 1260 ttctacggaa ggcctaccag aaattcacca tcttcgcatg aaacggctgg aattccttca 1320 1380 acaggetaac aaggggcaag atttacccac ceetgaccag gataatgget accacageet ggaggaggaa cacagcette teeggatgga teeaaaacae tgeagagata acceaacaca 1440 gtttgttcct gctgctggag acattcctgg aaacacccag gaatccactg aagaaaaaat 1500 1560 agaattatta actacagagg ttccacttgc tttggaagaa gagagccctt ctgagggctg tccatctagt gagataccta tggaaaagga gcctggagag ggccgaataa gtgtagttga 1620 ttactcatac ctagaaggtg accttcccat ttctgccaga ccagcttgta gtaacaaact 1680 1740 gatagattat attttgggag gtgcatccag tgacctggaa acaagttctg atccagaagg tgaggattgg gatgaggaag ctgaggatga tggttttgat agtgatagct cactgtcaga 1800 ctcagacctt gaacaagacc ctgaagggct tcacctttgg aactctttct gcagtgtaga 1860 tccttataat ccccagaact ttacagcaac aattcagact gctgccagaa ttgttcctga 1920 agageettet gatteagaga aggatttgte tggeaagtet gatetagaga atteeteeca 1980 gtctggaagc cttcctgaga cccctgagca tagttctggg gaggaagatg actgggaatc 2040 tagtgcagat gaagcagaga gtctcaaact gtggaactca ttctgtaatt ctgatgaccc 2100 2160 ctacaaccct ttaaatttta aggctccttt tcaaacatca ggggaaaatg agaaaggctg tegtgactea aagaceecat etgagteeat tgtggeeatt tetgagtgte acacettaet 2220 ttcttgtaag gtgcagctgt tggggagcca agaaagtgaa tgtccagact cggtacagcg 2280 2340 tgacgttctt tctggaggaa gacacacaca tgtcaaaaga aaaaaggtaa ccttccttga 2400 agaagttact gagtattata taagtggtga tgaggatcgc aaaggaccat gggaagaatt tgcaagggat ggatgcaggt tccagaaacg aattcaagaa acagaagatg ctattggata 2460 2520 ttgcttgaca tttgaacaca gagaaagaat gtttaataga ctccagggaa catgcttcaa 2580 aggacttaat gttctcaagc aatgttgagt tggcagcctg tagtcctagc tagcatacac 2640 tacctettac etgagaggtg tettttaaaa acaaatettg geagetgtee tttgacattt 2700 ttttttttag aggaaatgta acttggatct agtttaattt ttttttttgc aacatatccc actcagaaac attcaggttt gaagccagcc ctgataatga aggatgaact agtgtgattt 2760

ctaatcctcc cttttttgat ttagttggat gtgcttttaa atgtcctttg cctgcatgag			
gtggaaaggg gacctttttg agttgtcatt ttgcactttc aaaacttatt ttcttggaaa			
acaatattta tagggcttaa agcccatttt catttctaat ctaaattatg tgtgcctatc			
tg			
<210> 2 <211> 713 <212> PRT <213> Homo sapiens <400> 2			
Met Glu Pro Gly Thr Gly Gly Ser Arg Lys Arg Leu Gly Pro Arg Ala			
1 5 10 15			
Gly Phe Arg Phe Trp Pro Pro Phe Phe Pro Arg Arg Ser Gln Ala Gly 20 25 30			
Ser Ser Lys Phe Pro Thr Pro Leu Gly Pro Glu Asn Ser Gly Asn Pro 35 40 45			
Thr Leu Leu Ser Ser Ala Gln Pro Glu Thr Arg Val Ser Tyr Trp Thr 50 55 60			
Lys Leu Leu Ser Gln Leu Leu Ala Pro Leu Pro Gly Leu Leu Gln Lys 65 70 75 80			
Val Leu Ile Trp Ser Gln Leu Phe Gly Gly Met Phe Pro Thr Arg Trp 85 90 95			
Leu Asp Phe Ala Gly Val Tyr Ser Ala Leu Arg Ala Leu Lys Gly Arg 100 105 110			
Glu Lys Pro Ala Ala Pro Thr Ala Gln Lys Ser Leu Ser Ser Leu Gln 115 120 125			
Leu Asp Ser Ser Asp Pro Ser Val Thr Ser Pro Leu Asp Trp Leu Glu 130 135 140			

Glu Gly Ile His Trp Gln Tyr Ser Pro Pro Asp Leu Lys Leu Glu Leu 145 150 155 Lys Ala Lys Gly Ser Ala Leu Asp Pro Ala Ala Gln Ala Phe Leu Leu 165 Glu Gln Gln Leu Trp Gly Val Glu Leu Pro Ser Ser Leu Gln Ser Arg Leu Tyr Ser Asn Arg Glu Leu Gly Ser Ser Pro Ser Gly Pro Leu 200 195 205 Asn Ile Gln Arg Ile Asp Asn Phe Ser Val Val Ser Tyr Leu Leu Asn 215 Pro Ser Tyr Leu Asp Cys Phe Pro Arg Leu Glu Val Ser Tyr Gln Asn 230 235 Ser Asp Gly Asn Ser Glu Val Val Gly Phe Gln Thr Leu Thr Pro Glu 245 250 Ser Ser Cys Leu Arg Glu Asp His Cys His Pro Gln Pro Leu Ser Ala 260 265 Glu Leu Ile Pro Ala Ser Trp Gln Gly Cys Pro Pro Leu Ser Thr Glu 275 280 Gly Leu Pro Glu Ile His His Leu Arg Met Lys Arg Leu Glu Phe Leu Gln Gln Ala Asn Lys Gly Gln Asp Leu Pro Thr Pro Asp Gln Asp Asn 310 315 Gly Tyr His Ser Leu Glu Glu Glu His Ser Leu Leu Arg Met Asp Pro 325 330

Lys His Cys Arg Asp Asn Pro Thr Gln Phe Val Pro Ala Ala Gly Asp 340 345 350

Ile Pro Gly Asn Thr Gln Glu Ser Thr Glu Glu Lys Ile Glu Leu Leu 355 360 365

Thr Thr Glu Val Pro Leu Ala Leu Glu Glu Glu Ser Pro Ser Glu Gly 370 375 380

Cys Pro Ser Ser Glu Ile Pro Met Glu Lys Glu Pro Gly Glu Gly Arg

Ile Ser Val Val Asp Tyr Ser Tyr Leu Glu Gly Asp Leu Pro Ile Ser 405 410 415

Ala Arg Pro Ala Cys Ser Asn Lys Leu Ile Asp Tyr Ile Leu Gly Gly 420 425 430

Ala Ser Ser Asp Leu Glu Thr Ser Ser Asp Pro Glu Gly Glu Asp Trp 435 440 445

Asp Glu Glu Ala Glu Asp Asp Gly Phe Asp Ser Asp Ser Ser Leu Ser 450 460

Asp Ser Asp Leu Glu Gln Asp Pro Glu Gly Leu His Leu Trp Asn Ser 465 470 475 480

Phe Cys Ser Val Asp Pro Tyr Asn Pro Gln Asn Phe Thr Ala Thr Ile 485 490 495

Gln Thr Ala Ala Arg Ile Val Pro Glu Glu Pro Ser Asp Ser Glu Lys 500 505 510

Asp Leu Ser Gly Lys Ser Asp Leu Glu Asn Ser Ser Gln Ser Gly Ser 515 520 525

Leu Pro Glu Thr Pro Glu His Ser Ser Gly Glu Glu Asp Asp Trp Glu 530 535 540

Ser Ser Ala Asp Glu Ala Glu Ser Leu Lys Leu Trp Asn Ser Phe Cys 545 550 560

Asn Ser Asp Asp Pro Tyr Asn Pro Leu Asn Phe Lys Ala Pro Phe Gln 565 575

Thr Ser Gly Glu Asn Glu Lys Gly Cys Arg Asp Ser Lys Thr Pro Ser 580 585 590

Glu Ser Ile Val Ala Ile Ser Glu Cys His Thr Leu Leu Ser Cys Lys 595 600 605

Val Gln Leu Leu Gly Ser Gln Glu Ser Glu Cys Pro Asp Ser Val Gln 610 615

Arg Asp Val Leu Ser Gly Gly Arg His Thr His Val Lys Arg Lys 625 630 635 640

Val Thr Phe Leu Glu Glu Val Thr Glu Tyr Tyr Ile Ser Gly Asp Glu 645 650 655

Asp Arg Lys Gly Pro Trp Glu Glu Phe Ala Arg Asp Gly Cys Arg Phe 660 665 670

Gln Lys Arg Ile Gln Glu Thr Glu Asp Ala Ile Gly Tyr Cys Leu Thr 675 680 685

Phe Glu His Arg Glu Arg Met Phe Asn Arg Leu Gln Gly Thr Cys Phe 690 695 700

Lys Gly Leu Asn Val Leu Lys Gln Cys 705 710

<210> 3

<211> 5468

<212> DNA

<213> Mus musculus

<400> 3

60 eggteeteeg tetegeeetg eagetteegg gtgtgegget geggeeattt tgagettege ttetttgege cetegeetge cacceageea ceettteege ettggegttt egegeeteeg 120 tgcgggccac cggaaacgcc gccgtcgtct ccgtcgccgc cgcgcgaggg agggtcttct 180 240 ctatggtgga gcgatctcac acggcctagg acgtctcctt ccctagccgg gatggaccta accqcqqtcq ccaccqcttq cqcqqqcctc tqqqccqtcc qqtgcagcac tcgttgcgga 300 ageogeoget etetgggeet eetetgeegg egegggaate ggaetgeagt acceaeteeg 360 tggctgggca aggcggagac tgtgtagacc tcggatccag cctgcgctga cgccgctgag 420 ctctqtcctc ctcctqtctq aqaaqccqcc aaggaaagga qatggagaca ggaacgcaca 480 gggcccggaa gcggcctggc cctcggctgg gctcctggtt ccggctgccc ttccttcggc 540 gategeaege etgetetteg gagtteeege egeetteete tegacaaaat eeegggaaet 600 ccgctctgcc cgaqcqtcqq accaggtact ggaccaaatt gctttctcag ctccttgccc 660 tgctccctag cctattccag aagctgctgc tttggagcca gctttccggg ggcctgattc 720 ctaccagatg gctagatttt gccgcaagtt acagcgccct gagagcttcg agaggacggg 780

840 aggaatctga cgctcccacg gtgcagaagt ctctgagtta cactgcggct ggactcttcg 900 cgaagactcg cgtcgtcagt actcttgcat tggctagagg agggactcca gtggcagtgc 960 tegteeteag aetggaagtt aaacteaagg eecaggaaag agetttagae tetgeagege 1020 ccactttcct cctggagcag cagctgtggg gagtggagtt gctgcccagt agccttcaag 1080 ctggtctagt ctcccaccga gaacttgact cttcatcctc tgggcctctg agcgttcaga gettaggtaa ttteaaggta gttteetate teetgaacee tteetacetg gactacette 1140 cccagttagg gctgcgctgt cagagcagcg ctggaggtgg ccagtttgtg ggtttccgaa 1200 cactaacccc agagagetge tatetttetg aagatggttg teacceteag eegttgeggg 1260 1320 cagagatgtc ggcaaccgcc tggagaaggt gtccgcctct ctctacagaa ggcctgccgg 1380 aaatccacca ccttcgtatg aaacggctag aattcctcca ggctaacaaa gggcaagagt 1440 tacccaccc tgaccaagat aatggctatc atagcctgga ggaggaacat aaccttctcc 1500 ggatggacce acaacattgc acagataacc cagcacaggc ggtgtcccct gctgcagaca 1560 ggccggagcc cactgagaaa aaaccagaat tggtgattca agaagtttca cagagccccc 1620 agggaagcag tetgttttgt gaattacceg tgyaaaaaga atgtgaagag gaccaccacta atgcaactga cctctcagat agaggagaga gccttcctgt ttctaccaga ccagtttgta 1680 1740 gcaacaaact gatagattat attttgggag gcgcccccag tgacttggaa gccagctctg 1800 attctgaaag tgaggattgg ggcgaggaac ctgaggacga tggctttgat agcgatggct 1860 ccctgtctga atcagacgtg gaacaggact cggaaggcct tcacctttgg aactctttcc 1920 acagtgtaga tccttacaaa ccccaaaact ttacagccac gattcagacg gctgccagaa 1980 ttgcccccag agacccatca gattcaggga catcctggtc tggcagctgt ggtgtaggga 2040 gctgtcagga gggacccctt ccggagaccc ccgaccatag ttccggggag gaagatgact gggaaccgag tgcagatgaa gcagagaatc ttaaattgtg gaactctttc tgtcattctg 2100 aggaccccta caacctttta aattttaagg ctccttttca accgtcaggg aagaattgga 2160 2220 aaggccgtca ggactcaaag gcctcttctg aggtcacagt ggccttctct ggccatcata 2280 cettacttte ttgtaaggee cagetgttag agagecaaga agataattgt ccaggetgtg ggctgggtga ggctcttgct ggagaaagat acacccatat caagagaaaa aaggtaacct 2340 2400 tcctggaaga agttactgag tattatataa gtggtgatga ggatcgcaaa ggaccatggg 2460 aagaatttgc aagggatgga tgcaggttcc agaaacgaat tcaagaaaca gaagttgcca

2520 ttggctactg cttggccttt gagcacagag aaaaaatgtt taatagactg aggatcgagt 2580 caaaggactt actgttgtac agcaatgtta agaagtgaac agcctgcaac ccgtgcccac 2640 totgtotott acttgagagt ttocottaaa aacaaacact ggcagotgto ottggacatg 2700 tttttaaaga aacaacttgt atctagagat gcagtttgat tatttttggg taatgtgtct cattagaaac accaactccg ataatgaaga atctcttatc tgtaatcctc tcttttccta 2760 2820 tttagttgga tgtgggtttt gtctttttga gagggtctca ctgcataatt ctgtttggcc taggtctatg tatgtagacc aggttggcct tgaagttggt atttccttgc ctctgtttcc 2880 tgtgccacca tgcccagctg gaagtgtttt taaatatcct ctgcttacct ggggtgagag 2940 tttaattttg cactttcaaa acgtttcttc tggaggcagg ggctggtctg gtttacatac 3000 aggetteagg ceagetaggg etatgtggtg agacetagte ttagaggaca aacagaacaa 3060 aacagtcagg ttactgtgga aactgaggca ggaggatagg aaggtccagg tatgcctgga 3120 3180 actcagtgaa ctctgaactc aaggccagca tggggagttt agcaagacct ttttacactc agaatggaaa aggaagctgg ggatatagct cggtagcaga ggcccctgcc tacatgtgca 3240 3300 aggtcctggg ttcagtcccc agtactgcaa atagaaagaa aaaacattgt cttggataac 3360 tataaggttt aagcctcata gtcagttcta actcaaatta tgcatgcatt gagttcttgt gtgctttttc tgttctaaaa ttaatgggct ttatgggttt tgtttttgta tgtttttatg 3420 tctgttatat tttgaggtag gggattgagg cagggtctca ctgtggcctt gagctcatgg 3480 3540 cagttttcct gcttcaactg agtgttttgg tttgtttgtg tttgtgtttt tttactttca 3600 tagatttgac ttaatgaagg caaaaacctg ttatcaacct aaaagacatt gatgtgtcac ttcagtggtg gattttctcc ctctttttt ttttccccca gagctgagga ccaaacccag 3660 3720 ggetttgeae ttgetaggea agegetetae caetgageta aateeecaaa eeaceeece 3780 cccttttctt tttttaaaga catggtctta tatagtctag gctggcctta aactcattac 3840 ttagccaagg atggctttga aagatcctcc tgtcctcttg tttggcttgc acatggcatg 3900 tgccatacat ccagattttt ctctgtatct aggtcttttt aagatatttc caaggactgc ccacaaatcc acagtgcagt actttcttga ctgggaaagc ggggttggtg tgcttttcaa 3960 aggcacacac cattatgccc agctggtctg ccaaacttaa catatttggt ttctgtgcaa 4020 actgtccatt tggaaggttt ctgtgtgttg tagtttcagt tgaatgtggc tctctgtagc 4080 tttcaagaat gggtagaaat cataaagcac tcttaagtaa tcattgcatt gtagacattt 4140 4200 tttttttttta actagggggt atttgggaga catgtcagat attcactttt gttttatgtg

4260 tettaaaace agtgttactt acaccetgee teageactgg caetttteaa acetgtettg 4320 gagacactgt aaacttggat ggtgcagttc tgggttttca tgtgtaaaat gtcaactaca 4380 aaggtcaata tccaggtttg ttgtgttcta ccttatgtag agagaagcaa agcagaaagg 4440 gcagatagag cagccagaaa gtgctagtgt ccccccaaa gcgtgcttct agatagtgtg 4500 tggatcaggt gtgcttggtt tgttcagtta gcgtcacctg ttgtgcatgg ttgaggtaat gtgttaccag ttctttagtg gttacatgca caaaagagag gacctctgag tcgggtgtgg 4560 gatgagettt ccagacetgg cagggtaaac tacetcagtt tataatetee etggttattt 4620 4680 ccgtttgatg tgatctaagg tctgcctcag tggtgatgat gttcatccac acacaaggtt agtaagagtg cacgaccaga aacgttggtc ttatttttga gaacccccat ttctgtgtat 4740 4800 tttatgcacc tgcctttagt gaactccaga gtgcattaaa gagtctggtt tagtgccgtg 4860 ggaatgggct agtttagaag ctatgtttgg aaagcaggca agttgacttt aggaagaaaa 4920 gctgtgacag tgtgtagaca tttcttttaa accggactgc agcttaacaa cacttgattt 4980 cagatgatta ggtttttgtt tctgagaccc agcacctgta tatttaaaaa ttgttccaga ttacaccttc actatcaaat gagtaaatga ctcatgcctg cagacatgtc ctgatggtgg 5040 caagaacaga aggatetttg actgaaggag aaaaactgte attgtcatce cageceecag 5100 gaaagaacac ctccaaggca ggcaggcagg caggcaggca tggtggttct agttgaatac 5160 5220 acattcaagt cttgcagtgg tgctttagat ctgtgtagca tgtgaggctc tgtacaggtg 5280 ggggccacac ttctgagggc tgaaatgtgg caaccettta tctaacttga aatcaaaacc 5340 gtcaaatttt atttttata atttaagaaa gagttgggga atgacatttt ttgagttggc cttttcagct cagtcatttt acgtgtaacg tggagatttg atagctcaga ttatatttgt 5400 atataattat taactaatct gtaaattgta ataaatatat ttgcaattat taaaaaaaaa 5460 5468 aaaaaaaa

```
<210> 4
<211> 698
<212> PRT
```

<213> Mus musculus

<400> 4

Met Glu Thr Gly Thr His Arg Ala Arg Lys Arg Pro Gly Pro Arg Leu 1 5 10 15 Gly Ser Trp Phe Arg Leu Pro Phe Leu Arg Arg Ser His Ala Cys Ser 20 25 30

Ser Glu Phe Pro Pro Pro Ser Ser Arg Gln Asn Pro Gly Asn Ser Ala 35 40 45

Leu Pro Glu Arg Arg Thr Arg Tyr Trp Thr Lys Leu Leu Ser Gln Leu 50 55 60

Leu Ala Leu Leu Pro Ser Leu Phe Gln Lys Leu Leu Leu Trp Ser Gln 65 70 75 80

Leu Ser Gly Gly Leu Ile Pro Thr Arg Trp Leu Asp Phe Ala Ala Ser 85 90 95

Tyr Ser Ala Leu Arg Ala Ser Arg Gly Arg Glu Glu Ser Asp Ala Pro 100 105 110

Thr Val Gln Lys Ser Leu Ser Tyr Thr Ala Ala Gly Leu Phe Ala Lys 115 120 125

Thr Arg Val Val Ser Thr Leu Ala Leu Ala Arg Gly Gly Thr Pro Val 130 135 140

Ala Val Leu Val Leu Arg Leu Glu Val Lys Leu Lys Ala Gln Glu Arg 145 150 155 160

Ala Leu Asp Ser Ala Ala Pro Thr Phe Leu Leu Glu Gln Gln Leu Trp 165 170 175

Gly Val Glu Leu Leu Pro Ser Ser Leu Gln Ala Gly Leu Val Ser His 180 185 190

Arg Glu Leu Asp Ser Ser Ser Ser Gly Pro Leu Ser Val Gln Ser Leu 195 200 205

Gly Asn Phe Lys Val Val Ser Tyr Leu Leu Asn Pro Ser Tyr Leu Asp 210 215 220

Tyr Leu Pro Gln Leu Gly Leu Arg Cys Gln Ser Ser Ala Gly Gly 225 230 235 240

Gln Phe Val Gly Phe Arg Thr Leu Thr Pro Glu Ser Cys Tyr Leu Ser

Glu Asp Gly Cys His Pro Gln Pro Leu Arg Ala Glu Met Ser Ala Thr Ala Trp Arg Arg Cys Pro Pro Leu Ser Thr Glu Gly Leu Pro Glu Ile His His Arg Arg Met Arg Trp Leu Val Phe Leu Gln Pro Asn Gln Gly Gln Asp Leu Pro Thr Leu Asp Gln Asp Asn Gly Tyr His Ser Leu Glu Glu Glu His Asn Leu Leu Arg Met Asp Pro Gln His Cys Thr Asp Asn Pro Ala Gln Ala Val Ser Pro Ala Ala Asp Arg Pro Glu Pro Thr Glu Lys Lys Pro Glu Leu Val Ile Gln Glu Val Ser Gln Ser Pro Gln Gly Ser Ser Leu Phe Cys Glu Leu Pro Val Glu Lys Glu Cys Glu Glu Asp His Thr Asn Ala Thr Asp Leu Ser Asp Arg Gly Glu Ser Leu Pro Val Ser Thr Arg Pro Val Cys Ser Asn Lys Leu Ile Asp Tyr Ile Leu Gly Gly Ala Pro Ser Asp Leu Glu Ala Ser Ser Asp Ser Glu Ser Glu Asp Trp Gly Glu Glu Pro Glu Asp Asp Gly Phe Asp Ser Asp Gly Ser Leu Ser Glu Ser Asp Val Glu Gln Asp Ser Glu Gly Leu His Leu Trp Asn Ser Phe His Ser Val Asp Pro Tyr Lys Pro Gln Asn Phe Thr Ala Thr 

Ile Gln Thr Ala Ala Arg Ile Ala Pro Arg Asp Pro Ser Asp Ser Gly 485 490 495

Thr Ser Trp Ser Gly Ser Cys Gly Val Gly Ser Cys Gln Glu Gly Pro 500 505 510

Leu Pro Glu Thr Pro Asp His Ser Ser Gly Glu Glu Asp Asp Trp Glu 515 520 525

Pro Ser Ala Asp Glu Ala Glu Asn Leu Lys Leu Trp Asn Ser Phe Cys 530 535

His Ser Glu Asp Pro Tyr Asn Leu Leu Asn Phe Lys Ala Pro Phe Gln 545 550 560

Pro Ser Gly Lys Asn Trp Lys Gly Arg Gln Asp Ser Lys Ala Ser Ser 575

Glu Val Thr Val Ala Phe Ser Gly His His Thr Leu Leu Ser Cys Lys 580 585

Ala Gln Leu Leu Glu Ser Gln Glu Asp Asn Cys Pro Gly Cys Gly Leu 595 600 605

Gly Glu Ala Leu Ala Gly Glu Arg Tyr Thr His Ile Lys Arg Lys 610 615 620

Val Thr Phe Leu Glu Glu Val Thr Glu Tyr Tyr Ile Ser Gly Asp Glu 625 630 635 640

Asp Arg Lys Gly Pro Trp Glu Glu Phe Ala Arg Asp Gly Cys Arg Phe 645 650 655

Gln Lys Arg Ile Gln Glu Thr Glu Val Ala Ile Gly Tyr Cys Leu Ala 660 665 670

Phe Glu His Arg Glu Lys Met Phe Asn Arg Leu Arg Ile Glu Ser Lys 675 680 685

Asp Leu Leu Tyr Ser Asn Val Lys Lys 690 695

```
<210> 5
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> PCR primer
<400> 5
gatccatgga tggatggcca g
                                                                    21
<210> 6
<211> 24
<212> DNA
<213> Artificial Sequence
<220>
<223> PCR primer
<400> 6
                                                                    24
gcatgctttg catacttctg cctg
<210> 7
<211> 31
<212> DNA
<213> Artificial Sequence
<220>
<223> PCR primer G34L.Hind5S
<400> 7
tgcccaagct tcggcgatcg cacgcctgct c
                                                                    31
<210> 8
<211> 32
<212> DNA
<213> Artificial Sequence
<220>
<223> PCR primer G34L.Xho6AS
<400> 8
                                                                    32
gaaactctcg agtaagagac agagtgggca cg
<210> 9
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> oligonucleotide
```

<400> gggaugg	9 gaug cagguuccat t	21
<220> <223>	oligonucleotide	
<400> uggaaco	10 cugc auccaucect t	21